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What's Up MÄK

The Air Force Test Pilot School Upgrades to VR-Vantage IG

VR-Vantage IG is used to maximize training results.

Simulation takes incident management to next level

MÄK products generate training results.

MÄKing the news

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MÄKer Spotlight: Cecilia Arnulphi

Meet Cecilia, the newest addition to the MÄK Team!



The Air Force Test Pilot School Upgrades to VR-Vantage IG

VR-Vantage IG helps Calspan double the value of flight tests to both train test pilots and collect data for industry partners.

After the Flight Sciences Simulator was upgraded to use VR-Vantage IG, we got a chance to catch up with Jay Kemper, Senior Software Engineer at Calspan. We discussed how MÄK's VR-Vantage IG is used by the Air Force Test Pilot School and what they are learning using the VR-Vantage product.

"MÄK supports the Air Force Test Pilot School at Edwards AFB with VR-Vantage IG; an image generator product. VR-Vantage IG has been used in the Flight Sciences Simulator to train the next generation of test pilots in everything from aerodynamics to flight control design", said Mr Kemper. Students have a one year curriculum and they run courses starting every six months so there is a six month overlap in the programs. A physics-based flight



simulation model is used to learn the effects of aerodynamics. For example, they halve or double the effects of one of the flight controls so the pilot can experience the effects on the performance and maneuverability of the aircraft.

Each class has a capstone event which is a flight test. A flight test is a controlled experiment where most of the flight conditions are known (controlled) and specific characteristics are varied so they can be measured to collect data and learn about the effects of the variable. The school has moved beyond using the flight tests as just training exercises, now they are also partnering with industry leaders (e.g. Cessna and Lockheed) to perform tests as needed for research and development. It's a win-win — the school gets to learn flight testing skills and the industry obtains valid flight test data.

"One of the most advanced uses of the simulator is to connect it to a programmable aircraft and use the simulator as a ground cockpit", said Mr Kemper. Calspan is studying issues with unmanned aircraft systems, e.g. the effects of delays in satellite communication relays. The Calspan test aircraft is a Learjet 25 with a four man crew. The aircraft has a programmable flight control system, enabling the crew to get the plane into a controlled situation, then turn control over to the ground station to carry out the test. The ground control station can land the Learjet while the crew stands by with emergency override control in case anything goes wrong. "VR-Vantage uses the data from the aircraft to generate the scenes of the terrain to a very high degree of accuracy, allowing for an aircraft to be landed with no video stream", said Mr Kemper. The aircraft sends position, orientation, and status data to the ground station using a C-Band radio, and Calspan can get update rates up to 60 Hz. The terrain database was built by AFRL using TerraVista (TerraPage format).

Calspan is working with the UAS community to help set standards for how to test UAS, as simulation is always an integral part of flight testing. The flight test is the important part because the simulation can remove some, but not all doubt. By using the "Workload BuildUp Approach", simulation can be used to run many iterations and flush out problems.

When asked about MÄK's support, Mr Kemper said, "The support MÄK gives is second to none, response time of its salespersons and support has been fantastic. They have gone above and beyond to facilitate their products to fit our needs, from getting licenses to product to plugin support. I've even asked about how to perform a certain task in a plugin, and the support responded with a full code that I could just drop in and build!"

Want to learn more? Have a look at the [VR-Vantage page](#) for more information. Are you interested in [seeing a demonstration](#)?

Simulation takes incident management training to next level



When disaster strikes, communities rely on incident management teams to respond immediately and take action to save lives and property. Incident management staff in the United States is commonly divided into two separate groups- Emergency Response Teams (ERTs) and Emergency Operations Center Teams (EOCTs). This setup has been adopted by many states, local governments, and the private sector. This commonality improves coordination between public and private organizations.

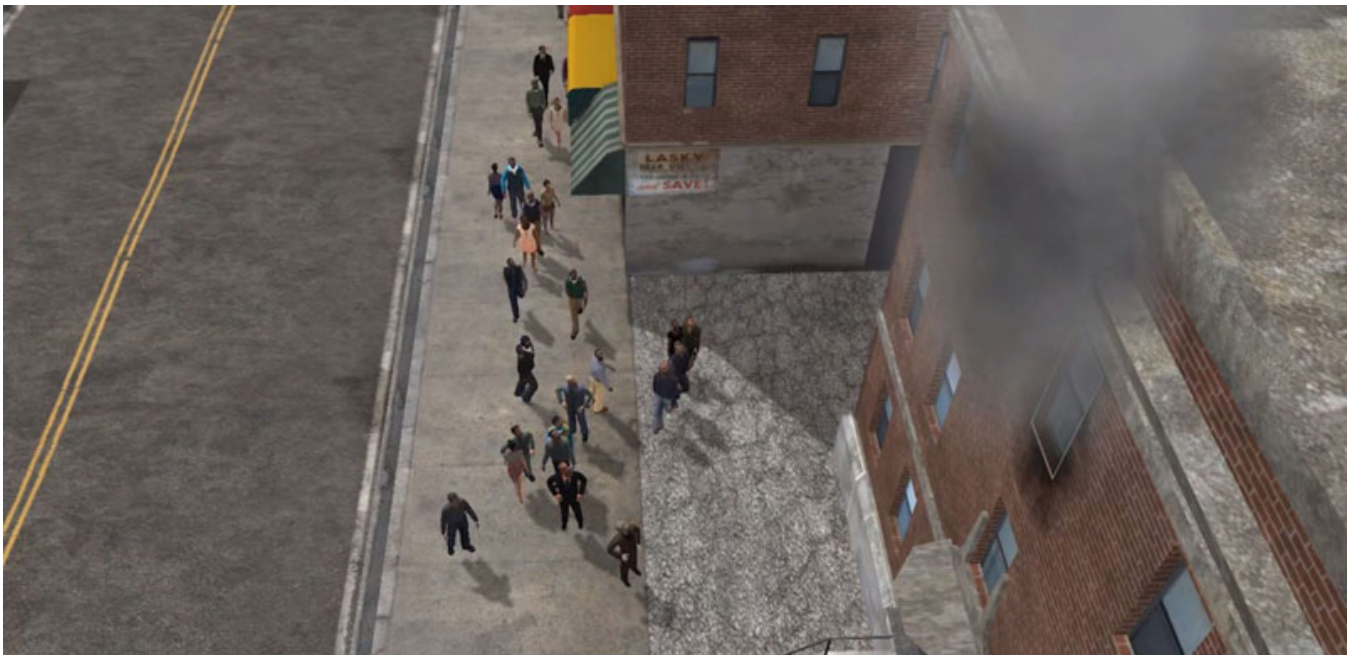
ERTs work on-the-ground to save lives, mitigate issues, and gather information. EOCTs work as a command/control center to develop and execute a Plan of Action involving Incident Command, Operations, Communications, Resources Management, Logistics, and Records.

The success of the ERTs is directly dependent on EOCTs' ability to provide effective command and control of a situation. To maximize effectiveness, EOCT members require comprehensive, contextualized training. Fortunately, simulation can help. MÄK's simulation products can take EOCTs to the next level by providing context-rich scenarios and better help them manage peripheral aspects of an operation that are either too expensive, too dangerous, or impossible to generate in a real-world environment. MÄK's tools offer incident management teams an environment to build any number of scenarios and test them repeatedly with minimal cost.

Let's look at some examples:

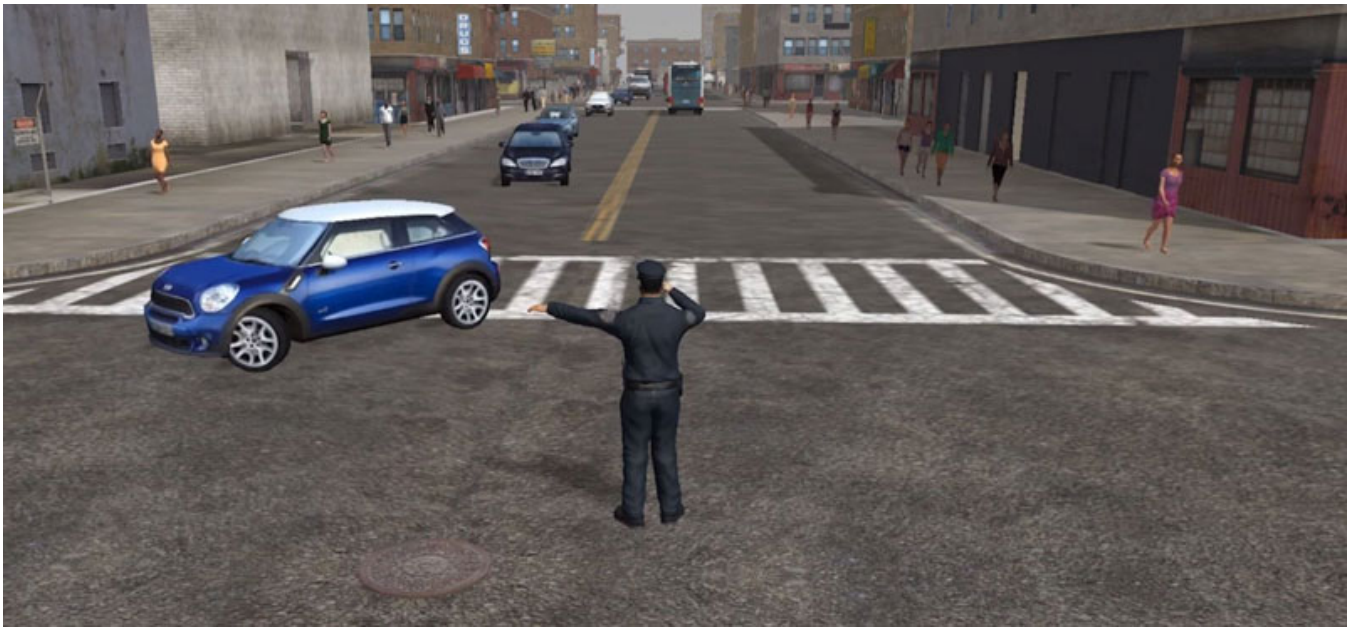
Cross-Training

Communication between the ECOTs and the ERTs is essential for cohesion and efficient operation in the face of emergency situations. Simulation can be an effective way to bring members of both teams together to practice managing small and large scale incidents. Vertical cross-training allows federal, state, local and private groups to co-develop mutually beneficial disaster planning. Dangerous operations particularly lend themselves to cross-training in a simulation environment, including Wildfire Detection, High-Rise Building Fire Response, Chemical, Biological, Radiological, Nuclear, or Explosive (CBRNE) Event Response, and Search and Rescue Operations.



Crowd and Traffic Control

In the real world, crowds and traffic present a challenge for emergency management organizations. Appropriate re-routing of traffic keeps the scene of the incident clear for first responders and keeps pedestrians away from potentially dangerous areas. MÄK's human characters can simulate crowds that would gather at or away from the scene of an incident, giving EOCTs the opportunity to call for barriers and manage flows of people. MÄK's AI allows for crowds to build up and dissipate, intelligently plan paths around temporary obstacles, and time-release commuters to model patterns of life.



Structural and Risk Assessment

Situational awareness is a key factor for determining best outcomes and minimizing potential risks. Simulation can be used to train EOCTs to maximize situational awareness by learning techniques to deploy unmanned vehicles (UAVs) and relay information to the ERTs. Improved situational awareness improves effectiveness of ERT's, for example: locating injured parties at the scene, and performing structural analysis of damaged infrastructure while preventing ERT's from entering potentially dangerous or contaminated areas.



Logistics Support

Logistical planning assures that the correct people and resources are in the right place at the right time. A lapse in logistical preparations can reduce the speed and effectiveness of an emergency response. MÄK's simulation technology allows for testing of evacuation mapping and planning. Incident management organizations can use MÄK's products to simulate placement of temporary support infrastructure, practice evacuation procedures, and to coordinate supply delivery plans.



Learn more about how customers are using MÄK's simulation products to develop incident management training. Check out our [UAV training](#) and [Fire emergency](#) use cases, as well as the products featured in this story: [VR-Forces](#), [DI-Guy](#), [VR-Vantage](#).

NewsMÄKers

MAK releases full suite of software products -- We've released a ton of new software in the first quarter to update our entire suite of simulation products. [Read the press release](#) to see what we've added to VR-Forces, VR-Vantage, SensorFX, VR-Link, the MÄK RTI, and the Data Logger.

MÄK makes noise at FIDAE - MÄK's booth at FIDAE 2016 was full of action in Santiago, Chile. Paulina Vodanovic Rojas, the Chilean Sub-Secretary of State [visited MÄK and came away impressed](#) after trying out an Oculus-based flight simulation. MÄK products were [featured on a Chilean TV presentation](#) as well.

MÄKer Dan Brockway Quoted in MS&T - [Dan was quoted](#) in the latest issue of MS&T magazine, discussing first-person player simulations and how MÄK is maximizing commercial gaming hardware.

[We'll be exhibiting at several shows in May](#). Come see what what we're bringing and who to look for at AUVSI (Xponential), ITEC, and Critical Issues in C4I Symposium!

MÄKer Spotlight: Cecilia Arnulphi, The Newest MÄKer!



We are excited to welcome Cecilia Arnulphi to the MÄK Team, and congratulate her on her new role as General Ledger Manager in Cambridge! She is responsible for general accounting, reporting, budgeting, forecasting, and ad hoc projects.

Previously, Cecilia worked for various industries including financial services, advertising, real estate, manufacturing, and professional services. Prior to MÄK she was the Accounting Manager

for SmartBooks Corp. Cecilia graduated with a Public Accounting degree in Argentina, then went on to earn a Masters Degree in Finance from Suffolk University. Later she became a Certified Manager Accountant.

When Cecilia isn't budgeting and forecasting, she loves spending time outdoors. She enjoys kayaking, snowshoeing, skiing, and taking her dog Theo hiking and swimming. She also spends endless hours gardening and practicing photography.

We hope we've piqued your interest in getting to know the MÄK team! Stay tuned to our [blog](#) and [Twitter](#) to get the latest on MÄK happenings!